1. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{-2x+4} = \left(\frac{1}{9}\right)^{-4x-5}$$

A. $x \in [-1.81, 0.19]$

B. $x \in [-6.5, -1.5]$

C. $x \in [-0.12, 3.88]$

D. $x \in [2.11, 8.11]$

E. There is no Real solution to the equation.

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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-3x + 6) + 5 = 2$$

A. $x \in [81, 84]$

B. $x \in [79, 82]$

C. $x \in [1, 4]$

D. $x \in [-10.33, -1.33]$

E. There is no Real solution to the equation.

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x - 2) - 8$$

A. $(-\infty, a), a \in [-5, 0]$

B. $(a, \infty), a \in [0, 5]$

C. $(-\infty, a], a \in [4, 12]$

D. $[a, \infty), a \in [-11, -4]$

E. $(-\infty, \infty)$

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4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{3x+2} = \left(\frac{1}{9}\right)^{2x+4}$$

A. $x \in [-2.6, -1.5]$

B. $x \in [-10.9, -9.7]$

C. $x \in [-0.8, 1.4]$

D. $x \in [0.8, 2.2]$

E. There is no Real solution to the equation.

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5. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x-1) - 1$$

A. $(-\infty, a), a \in [-0.9, 2.4]$

B. $(-\infty, a), a \in [-1.9, -0.5]$

C. $[a, \infty), a \in [-0.9, 2.4]$

D. $[a, \infty), a \in [-1.9, -0.5]$

E. $(-\infty, \infty)$

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6. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-6} - 7$$

A. $(-\infty, a], a \in [-9, -5]$

B. $(-\infty, a), a \in [-9, -5]$

C. $[a, \infty), a \in [6, 10]$

D. $(a, \infty), a \in [6, 10]$

E. $(-\infty, \infty)$

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7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(4x+7)+6=2$$

A. $x \in [-2.75, 0.25]$

B. $x \in [-21.75, -15.75]$

C. $x \in [0.5, 3.5]$

D. $x \in [-14.25, -5.25]$

E. There is no Real solution to the equation.

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8. Which of the following intervals describes the Range of the function below?

$$f(x)=e^{x-6}-2$$

A. $(a, \infty), a \in [-3, 0]$

B. $(-\infty, a), a \in [1, 5]$

C. $(-\infty, a], a \in [1, 5]$

D. $[a, \infty), a \in [-3, 0]$

E. $(-\infty, \infty)$

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9. Solve the equation for x and choose the interval that contains x (if it exists).

$$25=\sqrt[4]{\frac{10}{e^{5x}}}$$

A. $x \in [1.5, 4.8]$

B. $x \in [-2.1, -0.2]$

C. $x \in [-21.2, -20.2]$

D. There is no Real solution to the equation.

E. None of the above.

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10. Solve the equation for x and choose the interval that contains x (if it exists).

$$9 = \sqrt[3]{\frac{12}{e^{9x}}}$$

A. $x \in [-3.73, -2.25]$

B. $x \in [-0.66, -0.28]$

C. $x \in [-0.39, -0.07]$

D. There is no Real solution to the equation.

E. None of the above.